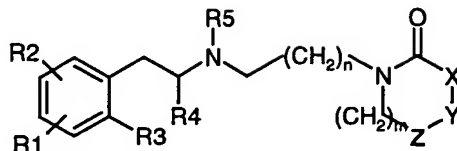


What is claimed is:

1. A compound comprising Formula I



5 wherein:

R¹, R² and R³ are independently in each occurrence hydrogen, halogen, (C₁₋₆) - alkyl, -OR', -SR', -NR'R'', -SOR', -SO₂R', -COOR', -OCOR', -OCONR'R'', -OSO₂R', -OSO₂NR'R'', -NR'SO₂R'', -NR'COR'', -SO₂NR'R'', -SO₂(CH₂)₁₋₃CONR'R'', -CONR'R'', cyano, haloalkyl, or nitro; or R¹ and R² if adjacent, taken together with the carbons to which they are attached may also form a 5- to 7- membered aromatic, saturated or unsaturated ring, optionally incorporating one or two ring heteroatoms chosen from N, S (O)₀₋₂, or O, and optionally substituted with (C₁₋₆)-alkyl, halo, cyano or lower alkoxy;

R' and R'' are independently in each occurrence hydrogen, (C₁₋₆)-alkyl, substituted lower alkyl, (C₀₋₃)alkylalkoxy, aryl, heterocyclyl, heteroaryl, aryl-(C₁₋₃)-alkyl, heteroaryl-(C₁₋₃)-alkyl, heterocyclyl-(C₁₋₃)-alkyl, cycloalkylalkyl, cycloalkyl, or R' and R'' together with the nitrogen they are attached may also form a 5- to 7- membered ring, optionally incorporating one additional ring heteroatom chosen from N, O or S(O)₀₋₂;

R⁴ is independently in each occurrence (C₁₋₆) alkyl;

R⁵ is independently in each occurrence (C₁₋₆) alkyl, (C₁₋₆) alkenyl, (C₁₋₆) alkynyl, or cycloalkyl;

one of X, Y or Z is independently S, O, CH₂ or N-R⁶, the others are CH₂;

R⁶ is hydrogen, (C₁₋₆)-alkyl, haloalkyl, aryl(C₁₋₆)alkyl, heteroaryl(C₁₋₆)alkyl, -(C₁₋₆)-CR'R'R', -COOR', -SO₂R', -C(O)R', -SO₂(CH₂)₀₋₃NR'R'', -CONR'R'', -C(O)OCH₂OC(O)R', -C(O)OCH₂SC(O)R', or -PO(OR')₂, where R' and R'' are as defined above;

m is an integer from 0 to 3 inclusive;

n is an integer from 1 to 6 inclusive;

or prodrugs, individual isomers, racemic or non-racemic mixtures of isomers, or pharmaceutically acceptable salts or solvates thereof.

2. The compound of Claim 1, wherein n is 3.
3. The compound of Claim 1, wherein R⁴ is methyl.
4. The compound of Claim 2, wherein n is 3 and R⁴ is methyl.
5. The compound of Claim 3, wherein m is 0.
- 5 6. The compound of Claim 3, wherein m is 1.
7. The compound of Claim 3, wherein m is 2.
8. The compound of Claim 6, wherein Y is NH.
9. The compound of Claim 7, wherein one of X, Y or Z is NR⁶, and the others are CH₂.
- 10 10. The compound of Claim 9, wherein X is NH.
11. The compound of Claim 9, wherein Y is NH.
12. The compound of Claim 9, wherein Z is NH.
13. The compound of Claim 9, wherein n is 3.
14. The compound of Claim 5, wherein one of X, Y or Z is O, and the others are CH₂.
- 15 15. The compound of Claim 5, wherein one of X, Y or Z is S, and the others are CH₂.
16. The compound of Claim 1 comprising 1-(4-{ethyl-[2-(4-methanesulfonylphenyl)-1-methylethyl]amino}butyl)-azepan-2-one; 4-(4-{allyl-[2-(4-methanesulfonylphenyl)-1-methylethyl]amino}butyl)-[1,4]diazepan-5-one; 4-(4-{[2-(4-*tert*-butylphenyl)-1-methylethyl]propylamino}butyl)-[1,4]diazepan-5-one; 1-(4-{[2-(4-methanesulfonylphenyl)-1-methylethyl]propylamino}butyl)-piperazin-2-one; 4-(4-{[2-(4-methanesulfonylphenyl)-1-methylethyl]propylamino}butyl)-5-oxo-[1,4]diazepan-1-carboxylic acid ethyl ester; 1-(4-{[(S)-2-(4-methanesulfonylphenyl)-1-methylethyl]propylamino}butyl)-[1,4]diazepan-2-one; 4-(4-{[(S)-2-(4-methanesulfonylphenyl)-1-methyl-ethyl]propylamino}butyl)-[1,4]diazepan-5-one; 1-(2-{ethyl-[2-(4-methoxyphenyl)-1-methylethyl]amino}ethyl)-piperidin-2-one; 4-(4-{[2-(4-methanesulfonylphenyl)-1-methylethyl]propylamino}butyl)-[1,4]oxazepan-3-one; 1,1,1-trifluoromethanesulfonic acid 4-(2-{ethyl-[4-(2-oxoazepan-1-yl)butyl]-amino}propyl)-phenyl ester; or a prodrug, an individual isomer,
- 20
- 25
- 30

a racemic or non-racemic mixture of isomers, or pharmaceutically acceptable salt or solvate thereof.

17. A pharmaceutical composition comprising a therapeutically effective amount of a compound of Claim 1 in admixture with a pharmaceutically acceptable carrier.

5 18. The pharmaceutical composition of Claim 16 wherein the compound is suitable for administration to a subject having a disease state which is alleviated by treatment with a M2/M3 muscarinic receptor antagonist.

10 19. A method of treatment comprising administering to a subject in need of such treatment, a therapeutically effective amount of at least one compound of Claim 1.

20. A method of treatment, wherein the subject has a disease state that is alleviated by treatment with a composition of Claim 17.

21. The method of treatment of Claim 19, wherein the disease state is alleviated with a M2/M3 muscarinic antagonist.

15 22. The method of treatment of Claim 19, wherein the disease state is associated with smooth muscle disorders comprising diseases of the genitourinary or gastrointestinal tract, or of respiratory states.

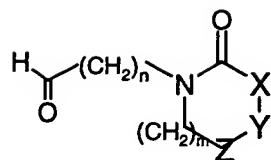
23. The method of treatment of Claim 22, wherein the disease state is associated with the genitourinary tract.

20 24. The method of treatment of Claim 23 wherein the disease state comprises overactive bladder, detrusor hyperactivity, urgency, frequency, reduced bladder capacity, incontinence episodes, changes in bladder capacity, micturition threshold, unstable bladder contractions, sphincteric spasticity, outlet obstruction, outlet insufficiency, pelvic hypersensitivity, idiopathic conditions or detrusor
25 instability.

25. The method of treatment of Claim 22 wherein the disease state comprises respiratory states from allergies or asthma.

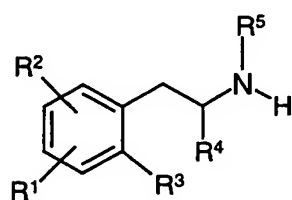
26. The method of treatment of Claim 22 wherein the disease state comprises gastrointestinal tract disorders.

30 27. A process for preparing a compound as claimed in Claim 1 which process comprises reacting a compound having a general formula (1)



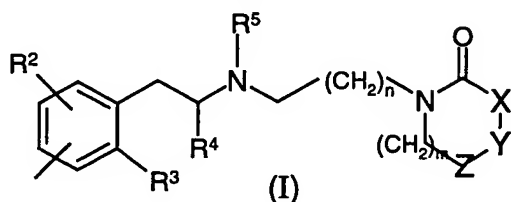
(1)

5 with a compound of general formula (2)



(2)

to provide a compound of Formula I

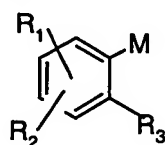


(I)

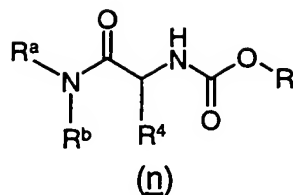
wherein R¹, R², R³, R⁴, R⁵, m, n, X, Y, and Z are as defined in Claim 1.

28. A process for preparing a compound as claimed in Claim 1 which process comprises

(a) reacting an aryl metal compound having a general formula

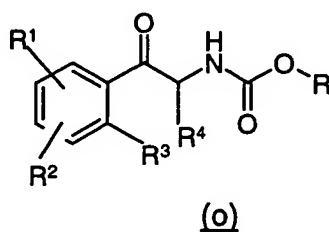


in which M is a metal or a magnesium halide,
with a compound of formula (n)



in which R is alkyl, aryl or arylalkyl, and R^a and R^b are alkyl or alkoxy, or R^a and R^b together with the nitrogen to which they are attached form a ring,

5 to afford a compound of formula (o)

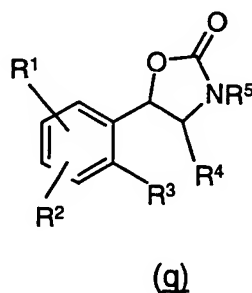


(b) reducing the compound of formula (o) followed by cyclization, and treatment with a compound of formula

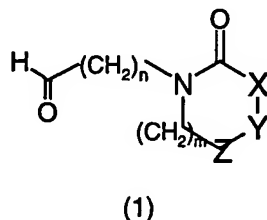
10 R^5L

wherein L is a leaving group,

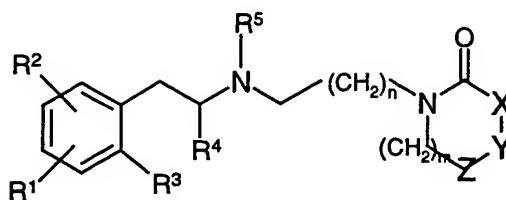
to afford a compound of formula (q)



15 (c) reducing the compound of formula (q), and treatment with a compound of general formula (1)



to provide a compound of Formula I

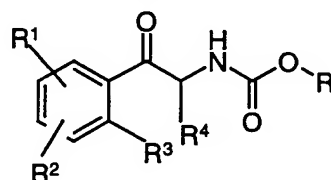


(I)

wherein R^1 , R^2 , R^3 , R^4 , R^5 , m , n , X , Y , and Z are as defined in Claim 1.

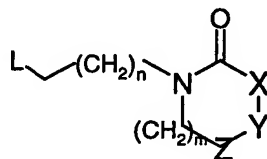
- 5 29. A process for preparing a compound as claimed in Claim 1 which process comprises:

a) reduction of the compound of formula (o):



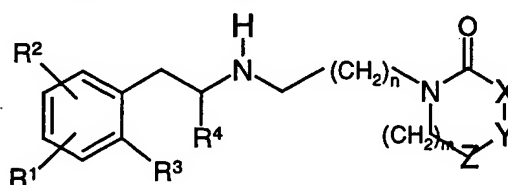
(o)

- 10 b) cyclization and treatment with a compound of formula (r):



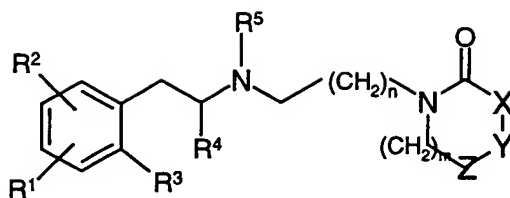
(r)

c) reduction to afford a compound of Formula 6:



(6)

d) and alkylation with an appropriate aldehyde or with a compound of Formula R^5L , wherein L is a leaving group, to provide a compound of Formula I:



(I)

wherein R^1 , R^2 , R^3 , R^4 , R^5 , X , Y , Z , m and n are as described in Claim 1.